Do You Know?

Fires and Explosions*

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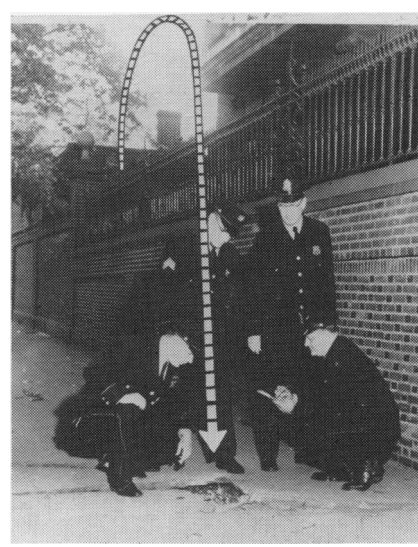
■ DO YOU KNOW that many hospital people, including anesthesiologists and manufacturers of anesthetic gases, do not believe that a definite hazard is present when using cylinders containing high-pressure gases? It is difficult to convince such individuals about the added safety of piping non-flammable medical gases at low pressures—indeed there is a great difference between 2,200 lbs. and 55 lbs.

It is true that we rarely hear of high-pressure cylinders exploding in a hospital, but it could happen, as the following excerpt from a newspaper illustrates:

"Patients were aroused at 5:30 this morning by the roar of an oxygen tank that blew into the air from the hospital grounds outside the accident ward. Flying off like a rocket, the 150 lb. 6-foot-long metal cylinder went over the ten-foot-high wall and iron fence . . . hit the pavement, cracked the cement and rolled into the street 160 feet from take-off point.

"The concussion of the tank's take-off shattered three glass windows in the emergency room just over the accident ward. Interns, nurses, and about a half dozen patients were in the accident ward, but there was no one in the emergency room. The glass blew inward and pieces showered all over. 'The roar', said one hospital official, 'must have awakened nearly all of the 450 hospital patients.' "

The investigation of this accident revealed an old partial frac-



Approximate trajectory of an oxygen cylinder which exploded in an outside storage area at a hospital is charted. A hole is shown where the 150 lb. cylinder smashed into the sidewalk, where it landed after clearing a ten-foot-high wall.

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ture about 8 inches from the base. This fracture gradually extended around the cylinder and led to the reported explosion. Twelve oxygen cylinders had been assembled and transported on a metal dolly that had four casters 6 inches high and 2 inches in diameter. The downward impact of the explosion was great enough to crush the heavy casters; and the upward impact was great enough to push over the upper plate of the assembly which was one-half inch thick. Fortunately, the oxygen was not stored in the main hospital building.

Needless to say, the hospital authorities were very happy that provisions were made to store the high-pressure medical gases outside of the building. The cylinder was only 8 years old and had last been tested in 1950. But there is no guarantee that an explosion of this nature cannot occur even under rigid inspection. "Flash - flames", oxygen fires and explosions with high-pressure oxygen are more frequent than you think. Because of litigation, attempts are made to keep them out of print.

Moral of the Story:

1. Whenever possible, pipe nonflammable medical gases at low pressure according to N.F.P.A. recommendations.

2. If it is necessary to use high-pressure medical gas cylinders they should be stored outside of the main hospital building.

Finally, as the illustration shows, an oxygen cylinder explosion *can* happen!

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